

SEQUENCE LISTING

<110> Flasinski, Stanislaw

<120> Methods for Using Artificial Polynucleotides and Compositions thereof to Reduce Transgene Silencing

<130> 11899.0235.00PC00

<140> US 60/396,665

<141> 2002-07-18

<150> US 06/396,665

<151> 2002-07-18

<160> 35

<170> PatentIn version 3.2

<210> 1

<211> 515

<212> PRT

<213> Oryza sativa

<400> 1

Met Ala Ala Thr Met Ala Ser Asn Ala Ala Ala Ala Ala Val Ser
1 5 10 15

Leu Asp Gln Ala Val Ala Ala Ser Ala Ala Phe Ser Ser Arg Lys Gln
20 25 30

Leu Arg Leu Pro Ala Ala Ala Arg Gly Gly Met Arg Val Arg Val Arg
35 40 45

Ala Arg Gly Arg Arg Glu Ala Val Val Val Ala Ser Ala Ser Ser Ser
50 55 60

Ser Val Ala Ala Pro Ala Ala Lys Ala Glu Glu Ile Val Leu Gln Pro
65 70 75 80

Ile Arg Glu Ile Ser Gly Ala Val Gln Leu Pro Gly Ser Lys Ser Leu
85 90 95

Ser Asn Arg Ile Leu Leu Leu Ser Ala Leu Ser Glu Gly Thr Thr Val
100 105 110

Val Asp Asn Leu Leu Asn Ser Glu Asp Val His Tyr Met Leu Glu Ala
115 120 125

Leu Lys Ala Leu Gly Leu Ser Val Glu Ala Asp Lys Val Ala Lys Arg
130 135 140

Ala Val Val Val Gly Cys Gly Gly Lys Phe Pro Val Glu Lys Asp Ala
 145 150 155 160

Lys Glu Glu Val Gln Leu Phe Leu Gly Asn Ala Gly Ile Ala Met Arg
 165 170 175

Ser Leu Thr Ala Ala Val Thr Ala Ala Gly Gly Asn Ala Thr Tyr Val
 180 185 190

Leu Asp Gly Val Pro Arg Met Arg Glu Arg Pro Ile Gly Asp Leu Val
 195 200 205

Val Gly Leu Lys Gln Leu Gly Ala Asp Val Asp Cys Phe Leu Gly Thr
 210 215 220

Glu Cys Pro Pro Val Arg Val Lys Gly Ile Gly Gly Leu Pro Gly Gly
 225 230 235 240

Lys Val Lys Leu Ser Gly Ser Ile Ser Ser Gln Tyr Leu Ser Ala Leu
 245 250 255

Leu Met Ala Ala Pro Leu Ala Leu Gly Asp Val Glu Ile Glu Ile Ile
 260 265 270

Asp Lys Leu Ile Ser Ile Pro Tyr Val Glu Met Thr Leu Arg Leu Met
 275 280 285

Glu Arg Phe Gly Val Lys Ala Glu His Ser Asp Ser Trp Asp Arg Phe
 290 295 300

Tyr Ile Lys Gly Gly Gln Lys Tyr Lys Ser Pro Gly Asn Ala Tyr Val
 305 310 315 320

Glu Gly Asp Ala Ser Ser Ala Ser Tyr Phe Leu Ala Gly Ala Ala Ile
 325 330 335

Thr Gly Gly Thr Val Thr Val Gln Gly Cys Gly Thr Thr Ser Leu Gln
 340 345 350

Gly Asp Val Lys Phe Ala Glu Val Leu Glu Met Met Gly Ala Lys Val
 355 360 365

Thr Trp Thr Asp Thr Ser Val Thr Val Thr Gly Pro Pro Arg Glu Pro
 370 375 380

Tyr Gly Lys Lys His Leu Lys Ala Val Asp Val Asn Met Asn Lys Met
385 390 395 400

Pro Asp Val Ala Met Thr Leu Ala Val Val Ala Leu Phe Ala Asp Gly
405 410 415

Pro Thr Ala Ile Arg Asp Val Ala Ser Trp Arg Val Lys Glu Thr Glu
420 425 430

Arg Met Val Ala Ile Arg Thr Glu Leu Thr Lys Leu Gly Ala Ser Val
435 440 445

Glu Glu Gly Pro Asp Tyr Cys Ile Ile Thr Pro Pro Glu Lys Leu Asn
450 455 460

Ile Thr Ala Ile Asp Thr Tyr Asp Asp His Arg Met Ala Met Ala Phe
465 470 475 480

Ser Leu Ala Ala Cys Ala Asp Val Pro Val Thr Ile Arg Asp Pro Gly
485 490 495

Cys Thr Arg Lys Thr Phe Pro Asn Tyr Phe Asp Val Leu Ser Thr Phe
500 505 510

Val Arg Asn
515

<210> 2
<211> 1548
<212> DNA
<213> Oryza sativa

<400> 2
atggcggcga ccatggcgct caacgccgcg gctgcggcgg cgggtgtccct ggaccaggcc 60
gtggcggcgt cggcggcggt ctcgtcgcgg aagcagctgc ggctgcccgc cgcggcgcgc 120
gggggggatgc ggggtgcgggt gcgggcgcgg gggcggcggg aggcgggtggt ggtggcgtcc 180
gcgtcgctcgt cgtcgggtggc agcgcgggcg gcgaaggcgg aggagatcgt gctccagccc 240
atcaggggaga tctccggggc gggttcagctg ccagggtcca agtcgctctc caacaggatc 300
ctcctcctct cgcctctctc cgagggcaca acagtgggtg acaacttgct gaacagtga 360
gatgttcaact acatgcttga ggccctgaaa gccctcgggc tctctgtgga agcagataaa 420
gttgcaaaaa gagctgtagt cgttggtgtg ggtggcaagt ttctgttga gaaggatgcg 480
aaagaggaag tgcaactctt cttggggaac gctggaatcg caatgcgac cttgacagca 540
gccgtgactg ctgctggtgg aaatgcaact tatgtgcttg atggagtgcc acgaatgagg 600

gagagaccga ttggtgactt ggttgtcggg ttgaaacaac ttggtgcgga tgtcgactgt 660
 ttccttggca ctgaatgcc acctgttcgt gtcaagggaa ttggaggact tcctggtggc 720
 aagggttaagc tctctggttc catcagcagt cagtacttga gtgccttgct gatggctgct 780
 cctttggccc ttggggatgt ggagatcgaa atcattgaca aactaatctc cattccttac 840
 gttgaaatga cattgagatt gatggagcgt tttggtgtga aggcagagca ttctgatagt 900
 tgggacagat tctatattaa gggagggcag aagtacaaat ctccctggaaa tgcctatgtt 960
 gaaggatgatg cctcaagcgc gagctatttc ttggctggtg ctgcaatcac tggaggcact 1020
 gtgacagttc aaggttgttg tacgaccagt ttgcagggtg atgtcaaatt tgcctgaggta 1080
 cttgagatga tgggagcaaa ggttacatgg actgacacca gtgtaaccgt aactggtcca 1140
 ccacgtgagc cttatgggaa gaaacacctg aaagctgttg atgtcaacat gaacaaaatg 1200
 cctgatgttg ccatgaccct tgcggttgtt gcactcttcg ctgatggtcc aactgctatc 1260
 agagatgttg cttcctggag agtaaaggaa accgaaagga tggttgcaat tcggaccgag 1320
 ctaacaaagc tgggagcatc ggttgaagaa ggtcctgact actgcatcat caccocaccg 1380
 gagaagctga acatcacggc aatcgacacc tacgatgatc acaggatggc catggccttc 1440
 tccctcgctg cctgcgccga cgtgcccggtg acgatcaggg accctgggtg caccgcgaag 1500
 accttcccc aactacttoga cgttctaagc actttcgtca ggaactga 1548

<210> 3

<211> 1548

<212> DNA

<213> *Oryza sativa*

<400> 3

atggctgcaa ctatggctag taacgcagcg gctgccgctg ccgtttcctt agaccaagca 60
 gtagcagcga gcgctgcatt ctcatcacgt aagcaactac ggctaccagc agccgctaga 120
 ggcggcatga gagttagagt gagggctaga ggtaggcggg aggctgtagt cgtagcctcc 180
 gcttctagca gttcgggtggc tgcgccggct gctaaggcag aggagattgt tttacaacct 240
 attagggaaa tatcgggggc cgtacaatta cctggaagca agagcctttc caacaggatt 300
 ctggttgcttt cagctctctc ggaggggaaca acagttgttg ataactctgtt gaatagttag 360
 gatgtgcact atatgctaga ggctctcaag gctctagggc tttctgtaga agcggataaa 420
 gtagcaaaac gcgcagtggg ttaggttgtt ggtgggaagt tcccagttga aaaggatgct 480
 aaggaagaag tacagctctt tctcggaat gccgggatcg ccatgcggag tttgactgct 540
 gcggtcacag ccgctggagg caacgcaaca tacgtcctag atgggggtgcc gagaatgcgt 600
 gagcgtccta ttggtgatct tgtcgtaggt ctcaagcaac tcggcgctga cgtagattgt 660

ttcttggtga ctgagtgtcc gccagtcaga gttaaaggaa tcggtgggct gccgggcgga 720
 aaggtcaagc tgtcgggcag tatttcgagt cagtatcttt ctgctctcct gatggctgcg 780
 ccattagctt tgggagatgt tgagatcgag atcattgata aacttatatc tatcccgtat 840
 gtcgagatga ctttaagact tatggaacgg tttgggggta aggccgagca tagcgacagt 900
 tgggatcggt tctacataaa gggaggccag aagtataagt ctcttgaggaa tgcttatgta 960
 gaaggggatg cttcatctgc gtcttacttc cttgcgggag cggtataaac tggaggaaca 1020
 gtcacagttc agggctgcgg tacaacaagt ttgcaagggtg acgtgaagtt tgccgaggta 1080
 cttgaaatga tgggtgccaa agtaacgtgg acagacacat cgggtgacagt tactggctct 1140
 ccacgagaac cttacggcaa aaagcatctt aaggccgtgg atgttaatat gaataagatg 1200
 cctgacgttg ctatgacact tgccgttggt gccctttttg cagacggccc aacggcgata 1260
 cgcgatgttg catcatggcg cgtcaaggaa acggagagga tgggtggctat tcgaactgaa 1320
 ctcaccaaac ttggtgcctc tgtagaggag ggccctgatt actgtatcat tacacccct 1380
 gagaaactta acatcactgc tattgataca tacgacgatc atagaatggc tatggctttc 1440
 tcactggccg cttgtgcaga tgttctgtc acaatcagag atcctggctg tactagaaag 1500
 acgttcccga actactttga tgttctttca acattcgtcc gcaattga 1548

<210> 4

<211> 1548

<212> DNA

<213> *Oryza sativa*

<400> 4

atggctgcaa ctatggctag taacgcagcg gctgccgctg ccgtttcctt agaccaagca 60
 gtagcagcga gcgctgcatt ctcatcacgt aagcaactac ggctaccagc agccgctaga 120
 ggcggcatga gagttagagt gagggctaga ggtaggcggg aggctgtagt cgtagcctcc 180
 gcttctagca gttcggtggt tgccgaggct gctaaggcag aggagattgt tttacaacct 240
 attagggaaa tatcgggggc cgtacaatta cctggaagca agagcctttc caacaggatt 300
 ctgttgcttt cagctctctc ggagggaaca acagttgtgg ataactctgtt gaatagttag 360
 gatgtgcact atatgctaga ggctctcaag gctctagggc tttctgtaga agcggataaa 420
 gtagcaaaac gcgcagtggg ttaggttggg ggtgggaagt tcccagttga aaaggatgct 480
 aaggaagaag tacagctctt tctcgggaat gccgggatcg ccatgcggag tttgactgct 540
 gcggtcacag ccgctggagg caacgcaaca tacgtcctag atgggggtgcc gagaatgcgt 600
 gagcgtccta ttggtgatct tgctgtaggt ctcaagcaac tcggcgctga cgtagattgt 660
 ttcttggtga ctgagtgtcc gccagtcaga gttaaaggaa tcggtgggct gccgggcgga 720

```

aagg tcaagc tgcgggcag tatttcgagt cagtatcttt ctgctctcct gatggctgcg      780
ccattagctt tgggagatgt tgagatcgag atcattgata aacttatatc tatcccgtat      840
gtcgagatga ctttaagact tatggaacgg tttgggggta aggccgagca tagcgacagt      900
tgggatcggt tctacataaa gggaggccag aagtataagt ctcttgggaa tgcttatgta      960
gaaggggatg cttcatctgc gtcttacttc cttgcgggag cggctataac tggaggaaca     1020
gtcacagttc agggctgcgg tacaacaagt ttgcaagggt acgtgaagtt tgccgaggta     1080
cttgaaatga tgggtgccaa agtaacgtgg acagacacat cgggtgacagt tactggtcct     1140
ccacgagaac cttacggcaa aaagcatctt aaggccgtgg atgttaatat gaataagatg     1200
cctgacgttg ctatgacact tgccgttggt gccctttttg cagacggccc aacggcgata     1260
cgcgatgttg catcatggcg cgtcaaggaa acggagagga tgggtggctat tcgaactgaa     1320
ctcaccaaac ttggtgcctc tgtagaggag ggccctgatt actgtatcat tacaccccct     1380
gagaaactta acatcactgc tattgatata tacgacgac atagaatggc tatggctttc     1440
tactggccg cttgtgcaga tggtcctgtc acaatcagag atcctggctg tactagaaag     1500
acgttcccga actactttga tggtctttca acattcgtcc gcaattga                    1548

```

```

<210> 5
<211> 525
<212> PRT
<213> Glycine max

```

```

<400> 5

```

```

Met Ala Gln Val Ser Arg Val His Asn Leu Ala Gln Ser Thr Gln Ile
1              5              10              15

```

```

Phe Gly His Ser Ser Asn Ser Asn Lys Leu Lys Ser Val Asn Ser Val
          20              25              30

```

```

Ser Leu Arg Pro Arg Leu Trp Gly Ala Ser Lys Ser Arg Ile Pro Met
          35              40              45

```

```

His Lys Asn Gly Ser Phe Met Gly Asn Phe Asn Val Gly Lys Gly Asn
          50              55              60

```

```

Ser Gly Val Phe Lys Val Ser Ala Ser Val Ala Ala Ala Glu Lys Pro
          65              70              75              80

```

```

Ser Thr Ser Pro Glu Ile Val Leu Glu Pro Ile Lys Asp Phe Ser Gly
          85              90              95

```

Thr Ile Thr Leu Pro Gly Ser Lys Ser Leu Ser Asn Arg Ile Leu Leu
 100 105 110

Leu Ala Ala Leu Ser Glu Gly Thr Thr Val Val Asp Asn Leu Leu Tyr
 115 120 125

Ser Glu Asp Ile His Tyr Met Leu Gly Ala Leu Arg Thr Leu Gly Leu
 130 135 140

Arg Val Glu Asp Asp Lys Thr Thr Lys Gln Ala Ile Val Glu Gly Cys
 145 150 155 160

Gly Gly Leu Phe Pro Thr Ser Lys Glu Ser Lys Asp Glu Ile Asn Leu
 165 170 175

Phe Leu Gly Asn Ala Gly Ile Ala Met Lys Ser Leu Thr Ala Ala Val
 180 185 190

Val Ala Ala Gly Gly Asn Ala Ser Tyr Val Leu Asp Gly Val Pro Arg
 195 200 205

Met Arg Glu Arg Pro Ile Gly Asp Leu Val Ala Gly Leu Lys Gln Leu
 210 215 220

Gly Ala Asp Val Asp Cys Phe Leu Gly Thr Asn Cys Pro Pro Val Arg
 225 230 235 240

Val Asn Gly Lys Gly Gly Leu Pro Gly Gly Lys Val Lys Leu Ser Gly
 245 250 255

Ser Val Ser Ser Gln Tyr Leu Thr Ala Leu Leu Met Ala Ala Pro Leu
 260 265 270

Ala Leu Gly Asp Val Glu Ile Glu Ile Val Asp Lys Leu Ile Ser Val
 275 280 285

Pro Tyr Val Glu Met Thr Leu Lys Leu Met Glu Arg Phe Gly Val Ser
 290 295 300

Val Glu His Ser Gly Asn Trp Asp Arg Phe Leu Val His Gly Gly Gln
 305 310 315 320

Lys Tyr Lys Ser Pro Gly Asn Ala Phe Val Glu Gly Asp Ala Ser Ser
 325 330 335

Ala Ser Tyr Leu Leu Ala Gly Ala Ala Ile Thr Gly Gly Thr Ile Thr

340 345 350
 Val Asn Gly Cys Gly Thr Ser Ser Leu Gln Gly Asp Val Lys Phe Ala
 355 360 365
 Glu Val Leu Glu Lys Met Gly Ala Lys Val Thr Trp Ser Glu Asn Ser
 370 375 380
 Val Thr Val Ser Gly Pro Pro Arg Asp Phe Ser Gly Arg Lys Val Leu
 385 390 395 400
 Arg Gly Ile Asp Val Asn Met Asn Lys Met Pro Asp Val Ala Met Thr
 405 410 415
 Leu Ala Val Val Ala Leu Phe Ala Asn Gly Pro Thr Ala Ile Arg Asp
 420 425 430
 Val Ala Ser Trp Arg Val Lys Glu Thr Glu Arg Met Ile Ala Ile Cys
 435 440 445
 Thr Glu Leu Arg Lys Leu Gly Ala Thr Val Glu Glu Gly Pro Asp Tyr
 450 455 460
 Cys Val Ile Thr Pro Pro Glu Lys Leu Asn Val Thr Ala Ile Asp Thr
 465 470 475 480
 Tyr Asp Asp His Arg Met Ala Met Ala Phe Ser Leu Ala Ala Cys Gly
 485 490 495
 Asp Val Pro Val Thr Ile Lys Asp Pro Gly Cys Thr Arg Lys Thr Phe
 500 505 510
 Pro Asp Tyr Phe Glu Val Leu Glu Arg Leu Thr Lys His
 515 520 525

<210> 6

<211> 1578

<212> DNA

<213> Glycine max

<400> 6

atggcccaag tgagcagagt gcacaatctt gctcaaagca ctcaaatttt tggccattct 60
 tccaactcca acaaactcaa atcggtgaat tcggtttcat tgaggccacg cctttggggg 120
 gcctcaaaat ctcgcatccc gatgcataaa aatggaagct ttatgggaaa ttttaatgtg 180
 gggaagggaa attccggcgt gtttaaggtt tctgcatcgg tcgccgccgc agagaagccg 240


```

tcaacgctgc cggagatcgt gttggaaccc atcaaagact tctcgggtac catcacattg 300
ccagggtcca agtctctgtc caatcgaatt ttgcttcttg ctgctctctc tgagggaaca 360
actgtttag acaacttggt gtatagttag gatattcatt acatgcttgg tgcattaagg 420
acccttggac tgcgtgtgga agatgacaaa acaaccaaac aagcaattgt tgaaggctgt 480
gggggattgt ttcccaactag taaggaatct aaagatgaaa tcaattttatt ccttggaat 540
gctggtatcg caatgaagtc cttgacagca gctgtggttg ctgcagggtg aaatgcaagc 600
tacgtacttg atggggtgoc ccgaatgaga gagaggccaa ttggggattt ggttgctggt 660
cttaagcaac ttggtgcaga tgttgattgc tttcttggca caaactgtcc acctgttcgt 720
gtaaatggga agggaggact tcctggcgga aaggtgaaac tgtctggatc agttagcagt 780
caatacttga ctgctttgct tatggcagct cctttagctc ttggtgatgt ggaaattgag 840
attgttgata aactgatttc tgttccatat gttgaaatga ctctgaagtt gatggagcgt 900
tttgaggttt ctgtggaaca cagtggtaat tgggatatgt tcttggtcca tggaggtcaa 960
aagtacaagt ctcttggaac tgcttttggt gaaggtgatg cttcaagtgc cagttattta 1020
ctagctggtg cagcaattac tgggtgggact atcactgtta atggctgtgg cacaagcagt 1080
ttacagggag atgtaaaatt tgctgaagtt cttgaaaaga tgggagctaa ggttacatgg 1140
tcagagaaca gtgtcactgt ttctggacca ccacgagatt tttctggtcg aaaagtcttg 1200
cgaggcattg atgtcaatat gaacaagatg ccagatgttg ccatgacact tgctgttggt 1260
gcactatttg ctaatgggtcc cactgctata agagatgttg caagttggag agttaaagag 1320
actgagagga tgatagcaat ctgcacagaa ctcagaaagc taggagcaac agttgaagaa 1380
ggtcctgatt actgtgtgat tactccacct gagaaattga atgtcacagc tatagacaca 1440
tatgatgacc acagaatggc catggcattc tctcttgctg cttgtgggga tgttccagta 1500
accatcaagg atcctgggtg caccaggaag acatttcctg actactttga agtccttgag 1560
aggttaacaa agcactaa 1578

```

```

<210> 7
<211> 1578
<212> DNA
<213> Glycine max

```

```

<400> 7
atggctcagg tctctcgcgt tcataatctc gctcagagta cccagatatt cggacattcc 60
agtaactcaa acaaactaaa gtctgtgaat agtgtatcac ttcggcctcg gctgtgggga 120
gcaagtaaga gccgtatccc tatgcacaag aacggttcgt tcatggggaa ctttaacgtc 180
ggcaaaggaa actcaggtgt cttcaaagta agcgccagcg tagctgcggc tgagaagccc 240

```

```

agtactttctc ctgaaattgt tcttgaaccg ataaaggatt tctcaggtac gattacacta      300
cctggatcaa agagtctctc taatagaatt ttgttgctcg cagctctgtc cgaaggaacc      360
-actgtagtcg ataacctcct ttatagcgaa gatatacatt atatgttggg ggcgctcaga      420
actcttgggc taagagttga ggacgataag actactaaac aagctatcgt cgaaggttgt      480
ggcgggttgt tccctacttc taaagaaagt aaagatgaga taaacttgtt tcttggaac      540
gcaggaatcg caatgaagag cctcaccgct gctgtcgttg cggcgggtgg taacgctagt      600
tacgtcttag acggcgtgcc tagaatgcga gaaagacctc tcggtgatct agtggctggc      660
ctaaaacagc ttggagcaga cgtcgattgt ttcttgggca caaattgccc gcccgtaga      720
gtgaacggga agggaggctt gccaggcggg aagggttaaac tatccggatc ggtctcgtca      780
cagtacctaa ctgcattgct catggccgcc ccgctcgctt tgggggacgt ggagattgaa      840
atcgtcgata agttgattag cgtgccttat gtggaaatga ccctcaaatt gatggagagg      900
ttcggagttt cggtagaaca ctccgggaat tgggatcggg ttcttgtaca cggagggcaa      960
aagtacaaaa gcccaggcaa tgccttcgtc gaaggggacg cttcgagcgc ttcctatctc     1020
ctcgctggcg cagccataac cggtggcacc ataaccgtga acggctgcgg cacctcatcc     1080
cttcaagggtg atgtaaagtt cgctgaggtc ttggagaaaa tgggcgcaaa ggtcacatgg     1140
tctgagaaca gcgtaaccgt gtccggacct ccagagactc ttcgtggtag aaaggtcctt     1200
aggggaatag atgtgaatat gaataagatg ccagatgtgg ctatgacgct cgctgttgtc     1260
gccctgttcg caaacggacc taccgcaata agggatgtcg cttcatggcg tgttaaggaa     1320
accgaacgga tgatcgctat ttgcaccgag ttgcgtaagc tgggtgcaac ggtggaagaa     1380
ggaccagact attgcgtgat aacacctcct gaaaagctca atgtgaccgc tattgacact     1440
tatgacgatc acagaatggc tatggcattc tcaattgctg cttgcggtga cgtgccggtt     1500
acgatcaagg acccagggtg tactaggaag acattcccag attactttga ggtgttgga     1560
agattgacaa agcactga                                     1578

```

```

<210> 8
<211> 506
<212> PRT
<213> Zea mays

```

```

<400> 8

```

```

Met Ala Ala Met Ala Thr Lys Ala Ala Ala Gly Thr Val Ser Leu Asp
1           5           10          15

```

```

Leu Ala Ala Pro Ser Arg Arg His His Arg Pro Ser Ser Ala Arg Pro
          20          25          30

```

Pro Phe Arg Pro Ala Val Arg Gly Leu Arg Ala Pro Gly Arg Arg Val
 35 40 45

Ile Ala Ala Pro Pro Ala Ala Ala Ala Ala Ala Val Gln Ala Gly
 50 55 60

Ala Glu Glu Ile Val Leu Gln Pro Ile Lys Glu Ile Ser Gly Thr Val
 65 70 75 80

Lys Leu Pro Gly Ser Lys Ser Leu Ser Asn Arg Ile Leu Leu Leu Ala
 85 90 95

Ala Leu Ser Glu Gly Thr Thr Val Val Asp Asn Leu Leu Asn Ser Glu
 100 105 110

Asp Val His Tyr Met Leu Gly Ala Leu Arg Thr Leu Gly Leu Ser Val
 115 120 125

Glu Ala Asp Lys Ala Ala Lys Arg Ala Val Val Val Gly Cys Gly Gly
 130 135 140

Lys Phe Pro Val Glu Asp Ala Lys Glu Glu Val Gln Leu Phe Leu Gly
 145 150 155 160

Asn Ala Gly Ile Ala Met Arg Ser Leu Thr Ala Ala Val Thr Ala Ala
 165 170 175

Gly Gly Asn Ala Thr Tyr Val Leu Asp Gly Val Pro Arg Met Arg Glu
 180 185 190

Arg Pro Ile Gly Asp Leu Val Val Gly Leu Lys Gln Leu Gly Ala Asp
 195 200 205

Val Asp Cys Phe Leu Gly Thr Asp Cys Pro Pro Val Arg Val Asn Gly
 210 215 220

Ile Gly Gly Leu Pro Gly Gly Lys Val Lys Leu Ser Gly Ser Ile Ser
 225 230 235 240

Ser Gln Tyr Leu Ser Ala Leu Leu Met Ala Ala Pro Leu Ala Leu Gly
 245 250 255

Asp Val Glu Ile Glu Ile Ile Asp Lys Leu Ile Ser Ile Pro Tyr Val
 260 265 270

Glu Met Thr Leu Arg Leu Met Glu Arg Phe Gly Val Lys Ala Glu His
 275 280 285

Ser Asp Ser Trp Asp Arg Phe Tyr Ile Lys Gly Gly Gln Lys Tyr Lys
 290 295 300

Ser Pro Lys Asn Ala Tyr Val Glu Gly Asp Ala Ser Ser Ala Ser Tyr
 305 310 315 320

Phe Leu Ala Gly Ala Ala Ile Thr Gly Gly Thr Val Thr Val Glu Gly
 325 330 335

Cys Gly Thr Thr Ser Leu Gln Gly Asp Val Lys Phe Ala Glu Val Leu
 340 345 350

Glu Met Met Gly Ala Lys Val Thr Trp Thr Glu Thr Ser Val Thr Val
 355 360 365

Thr Gly Pro Pro Arg Glu Pro Phe Gly Arg Lys His Leu Lys Ala Ile
 370 375 380

Asp Val Asn Met Asn Lys Met Pro Asp Val Ala Met Thr Leu Ala Val
 385 390 395 400

Val Ala Leu Phe Ala Asp Gly Pro Thr Ala Ile Arg Asp Val Ala Ser
 405 410 415

Trp Arg Val Lys Glu Thr Glu Arg Met Val Ala Ile Arg Thr Glu Leu
 420 425 430

Thr Lys Leu Gly Ala Ser Val Glu Glu Gly Pro Asp Tyr Cys Ile Ile
 435 440 445

Thr Pro Pro Glu Lys Leu Asn Val Thr Ala Ile Asp Thr Tyr Asp Asp
 450 455 460

His Arg Met Ala Met Ala Phe Ser Leu Ala Ala Cys Ala Glu Val Pro
 465 470 475 480

Val Thr Ile Arg Asp Pro Gly Cys Thr Arg Lys Thr Phe Pro Asp Tyr
 485 490 495

Phe Asp Val Leu Ser Thr Phe Val Lys Asn
 500 505

<210> 9

<211> 1521

<212> DNA

<213> Zea mays

<400> 9

```

atggcgccca tggcgaccaa ggccgccgcg ggcaccgtgt cgctggacct cgccgcgccg      60
tcgcgcgcgc accaccgccc gagctcggcg cgcccgccct tccgccccgc cgtccgcggg      120
ctgcggggcg ctgggcgccg cgtgatcgcc gcgcgcgcgg cggcggcagc ggcgggcgcg      180
gtgcaggcgg gtgccgagga gatcgtgctg cagcccatca aggagatctc cggcaccgtc      240
aagctgccgg ggtccaagtc gctttccaac cggatcctcc tactcgccgc cctgtccgag      300
gggacaacag tggttgataa cctgctgaac agtgaggatg tccactacat gtcgggggcc      360
ttgaggactc ttggtctctc tgtcgaagcg gacaaagctg ccaaagagc tgtagtgtgt      420
ggctgtggtg gaaagttccc agttgaggat gctaaagagg aagtgcagct cttcttgggg      480
aatgctggaa tcgcaatgcg gtccttgaca gcagctgtta ctgctgctgg tggaaatgca      540
acttacgtgc ttgatggagt accaagaatg agggagagac ccattggcga cttggtgtgc      600
ggattgaagc agcttggtgc agatgttgat tgtttccttg gcaactgactg ccacactgtt      660
cgtgtcaatg gaatcggagg gctacctggt ggcaagggtca agctgtcttg ctccatcagc      720
agtcagtact tgagtgcctt gctgatggct gtccttttg ctcttgggga tgtggagatt      780
gaaatcattg ataaattaat ctccattccg tacgtcgaaa tgacattgag attgatggag      840
cgttttggtg tgaaagcaga gcattctgat agctgggaca gattctacat taaggagggt      900
caaaaataca agtcccctaa aaatgcctat gttgaagggt atgcctcaag cgcaagctat      960
ttcttggtcg gtgctgcaat tactggaggg actgtgactg tggaagggtg tggcaccacc     1020
agtttgagg gtgatgtgaa gtttgctgag gtactggaga tgatgggagc gaaggttaca     1080
tggaaccgaga ctagcgtaac tgttactggc ccaccgcggg agccatttgg gaggaaacac     1140
ctcaaggoga ttgatgtcaa catgaacaag atgcctgatg tcgccatgac tcttgctgtg     1200
gttgccctct ttgccgatgg cccgacagcc atcagagacg tggcttctct gagagtaaag     1260
gagaccgaga ggatggttgc gatccggacg gagctaacca agctgggagc atctgttgag     1320
gaagggccgg actactgcat catcacgccg ccggagaagc tgaacgtgac ggcgatcgac     1380
acgtacgacg accacaggat ggccatggcc ttctcccttg ccgcctgtgc cgaggtcccc     1440
gtcaccatcc gggaccctgg gtgcaccggg aagaccttcc ccgactactt cgatgtgctg     1500
agcactttcg tcaagaatta a                                                    1521

```

<210> 10

<211> 1521

<212> DNA

<213> Zea mays

<400> 10

```

atggcggcta tggccacgaa ggcagcggcc ggtacagtaa gcctcgattt ggcggccccc 60
tcccgtaggc accaccggcc aagcagtgcg aggccaccgt tcaggccagc agttcgcggt 120
cttagagcgc ctggtagaag ggttatcgca gcgccaccgg cggctgccgc tgcggcagcg 180
gtgcaggccg gcgcggaaga gatcgtccta cagcctatca aggaaatctc tggtagcgta 240
aagttaccag gcagcaaaag tcttagcaac cgaatcctgc tgttgcggc actctctgaa 300
gggaccacgg tcgtagataa tctgctcaac agcgaagacg tgcactatat gttgggtgcc 360
ctgaggacgc taggtctgtc agtgaagcc gataaggccg ccaagcgcgc tgcgtcgtt 420
ggctgcggcg gtaagttccc cgtggaggac gcgaaagaag aggtgcagtt atttcttggg 480
aacgctggca tcgccatgcg gtcccttacc gcagccgtca ccgctgcggg aggcaacgca 540
acttacgtgc ttgacggtgt tctcgtatg agagagcggc ccatagggga tctcgtcgtg 600
gggctcaagc agctcggggc cgacgttgat tgcttcctcg gaaccgactg cccccctgtg 660
aggggtgaacg gcacggggg actgccagga ggcaaagtca agttgtccgg ctcaatttcc 720
tcgcagtacc tgagtgcctt gcttatggcg gcccctctgg ctctgggaga cgtcgaaatt 780
gagatcattg ataagctgat ctctatccct tatgttgaga tgacactccg tctgatggaa 840
agattcgggg tcaaagctga gcactccgat tcctgggaca ggttctatat caagggcgga 900
cagaaatata agtcaccgaa gaatgcgtac gtcgagggag acgcatcgag cgcgagttac 960
ttccttgccg gcgctgccat caccggggga accgtgacag tggaaggctg tgggacaacg 1020
agcttgacgg gcgacgtcaa atttgctgag gtgctagaaa tgatgggcgc taagggtgact 1080
tggactgaga cgtccgtgac cgttacggga ccgccccgcg aacctttcgg ccggaagcat 1140
ctgaaagcga ttgatgtgaa catgaataag atgccggacg tcgctatgac acttgccgtg 1200
gtggccctgt tcgctgacgg cccaccgca atcagggatg tcgctagttg gaggtcaag 1260
gagacagagc gtatggtggc gatccgaacg gagctgacta aactcggggc cagtgtggag 1320
gagggcccg attactgcat aatcacacct ccagagaagt tgaacgtcac cgctatcgac 1380
acatacgacg atcaccggat ggcaatggc tttagcttg cagcgtgcgc cgaagtacct 1440
gtgactataa gagatccagg ttgcaccgc aaaacgtttc ccgactatct cgacgtcctc 1500
tcaaccttcg tgaagaactg a 1521

```

<210> 11

<211> 76

<212> PRT

<213> Arabidopsis thaliana

<400> 11

Met Ala Gln Val Ser Arg Ile Cys Asn Gly Val Gln Asn Pro Ser Leu
 1 5 10 15

Ile Ser Asn Leu Ser Lys Ser Ser Gln Arg Lys Ser Pro Leu Ser Val
 20 25 30

Ser Leu Lys Thr Gln Gln His Pro Arg Ala Tyr Pro Ile Ser Ser Ser
 35 40 45

Trp Gly Leu Lys Lys Ser Gly Met Thr Leu Ile Gly Ser Glu Leu Arg
 50 55 60

Pro Leu Lys Val Met Ser Ser Val Ser Thr Ala Cys
 65 70 75

<210> 12

<211> 228

<212> DNA

<213> Arabidopsis thaliana

<400> 12

atggcgcaag ttagcagaat ctgcaatggg gtgcagaacc catctcttat ctccaatctc 60
 tcgaaatcca gtcaacgcaa atctccctta tcggtttctc tgaagacgca gcagcatcca 120
 cgagcttata cgatttcgtc gtcgtgggga ttgaagaaga gtgggatgac gttaattggc 180
 tctgagcttc gtcctcttaa ggtcatgtct tctgtttcca cggcgtgc 228

<210> 13

<211> 228

<212> DNA

<213> Arabidopsis thaliana

<400> 13

atggcccagg taagtaggat ctgtaacgga gtccaaaacc cttcactaat atcgaacctg 60
 tcaaaaagct ctcaaagaaa gtcgccgctt tctgtatcgt tgaaaactca acagcaccgc 120
 agggcttata ccatctcaag ctccctgggg cttaaagaaaa gtggaatgac actgatcggt 180
 agcgaactac gaccgctgaa agtcatgtcc tcagtcagca ctgcgtgc 228

<210> 14

<211> 228

<212> DNA

<213> Arabidopsis thaliana

<400> 14

atggcgcaag taagtagaat ctgcaacggc gtgcagaacc cgtcgctgat ctccaacctc 60
 agcaagtcca gccagcggaa gtcgccgctc tcggtcagcc tcaagacca acagcaccgc 120

agggcctacc ctatcagctc atcctggggc ctcaagaaga gtggcatgac gctgatcggc 180
 agcgagctgc ggccactcaa ggtgatgtcc tgggtctcaa cggcgtgc 228

<210> 15
 <211> 455
 <212> PRT
 <213> Agrobacterium tumefaciens

<400> 15

Met Leu His Gly Ala Ser Ser Arg Pro Ala Thr Ala Arg Lys Ser Ser
 1 5 10 15

Gly Leu Ser Gly Thr Val Arg Ile Pro Gly Asp Lys Ser Ile Ser His
 20 25 30

Arg Ser Phe Met Phe Gly Gly Leu Ala Ser Gly Glu Thr Arg Ile Thr
 35 40 45

Gly Leu Leu Glu Gly Glu Asp Val Ile Asn Thr Gly Lys Ala Met Gln
 50 55 60

Ala Met Gly Ala Arg Ile Arg Lys Glu Gly Asp Thr Trp Ile Ile Asp
 65 70 75 80

Gly Val Gly Asn Gly Gly Leu Leu Ala Pro Glu Ala Pro Leu Asp Phe
 85 90 95

Gly Asn Ala Ala Thr Gly Cys Arg Leu Thr Met Gly Leu Val Gly Val
 100 105 110

Tyr Asp Phe Asp Ser Thr Phe Ile Gly Asp Ala Ser Leu Thr Lys Arg
 115 120 125

Pro Met Gly Arg Val Leu Asn Pro Leu Arg Glu Met Gly Val Gln Val
 130 135 140

Lys Ser Glu Asp Gly Asp Arg Leu Pro Val Thr Leu Arg Gly Pro Lys
 145 150 155 160

Thr Pro Thr Pro Ile Thr Tyr Arg Val Pro Met Ala Ser Ala Gln Val
 165 170 175

Lys Ser Ala Val Leu Leu Ala Gly Leu Asn Thr Pro Gly Ile Thr Thr
 180 185 190

Val Ile Glu Pro Ile Met Thr Arg Asp His Thr Glu Lys Met Leu Gln
 195 200 205

Gly Phe Gly Ala Asn Leu Thr Val Glu Thr Asp Ala Asp Gly Val Arg
 210 215 220

Thr Ile Arg Leu Glu Gly Arg Gly Lys Leu Thr Gly Gln Val Ile Asp
 225 230 235 240

Val Pro Gly Asp Pro Ser Ser Thr Ala Phe Pro Leu Val Ala Ala Leu
 245 250 255

Leu Val Pro Gly Ser Asp Val Thr Ile Leu Asn Val Leu Met Asn Pro
 260 265 270

Thr Arg Thr Gly Leu Ile Leu Thr Leu Gln Glu Met Gly Ala Asp Ile
 275 280 285

Glu Val Ile Asn Pro Arg Leu Ala Gly Gly Glu Asp Val Ala Asp Leu
 290 295 300

Arg Val Arg Ser Ser Thr Leu Lys Gly Val Thr Val Pro Glu Asp Arg
 305 310 315 320

Ala Pro Ser Met Ile Asp Glu Tyr Pro Ile Leu Ala Val Ala Ala Ala
 325 330 335

Phe Ala Glu Gly Ala Thr Val Met Asn Gly Leu Glu Glu Leu Arg Val
 340 345 350

Lys Glu Ser Asp Arg Leu Ser Ala Val Ala Asn Gly Leu Lys Leu Asn
 355 360 365

Gly Val Asp Cys Asp Glu Gly Glu Thr Ser Leu Val Val Arg Gly Arg
 370 375 380

Pro Asp Gly Lys Gly Leu Gly Asn Ala Ser Gly Ala Ala Val Ala Thr
 385 390 395 400

His Leu Asp His Arg Ile Ala Met Ser Phe Leu Val Met Gly Leu Val
 405 410 415

Ser Glu Asn Pro Val Thr Val Asp Asp Ala Thr Met Ile Ala Thr Ser
 420 425 430

Phe Pro Glu Phe Met Asp Leu Met Ala Gly Leu Gly Ala Lys Ile Glu

435

440

445

Leu Ser Asp Thr Lys Ala Ala
450 455

<210> 16

<211> 1368

<212> DNA

<213> Agrobacterium tumefaciens

<400> 16

```

atgcttcacg gtgcaagcag cgggcccgca accgcccgca aatcctctgg cctttccgga      60
accgtccgca ttcccggcga caagtcgacg tcccaccggg ccttcatgtt cggcggtctc      120
gcgagcggtg aaacgcgcat caccggcctt ctggaaggcg aggacgtcat caatacgggc      180
aaggccatgc aggcgatggg cgcccgcatc cgtaagggaag gcgacacctg gatcatcgat      240
ggcgtcggca atggcggcct cctggcgccg gaggcgccgc tcgatttcgg caatgcgcgc      300
acggggtgcc gcctgacgat gggcctcgtc ggggtctacg atttcgacag caccttcacg      360
ggcgacgcct cgctcacaaa gcgcccgatg ggccgctgtg tgaaccgct gcgcgaaatg      420
ggcgtcgagg tgaaatcgga agacgggtgac cgtcttcccg ttaccttgcg cgggccgaag      480
acgccgacgc cgatcaccta ccgctgcccg atggcctccg cacagggtgaa gtccgccgtg      540
ctgctcgccg gcctcaacac gcccggcacg acgacgggtca tcgagccgat catgacgcgc      600
gatcatacgg aaaagatgct gcagggtctt ggcgcgaacc ttaccgtcga gacggatgcg      660
gacggcgtgc gcaccatccg cctggaaggc cgcggcaagc tcaccggcca agtcatcgac      720
gtgccgggcg acccgctctc gacggccttc ccgctgggtg cggccctgct tgttccgggc      780
tccgacgtca ccctcctcaa cgtgctgatg aacccacccc gcaccggcct catcctgacg      840
ctgcaggaaa tgggcgccga catcgaagtc atcaaccgca gccttgccgg cggcgaagac      900
gtggcggacc tgcgcggttcg ctctccacg ctgaaggcg tcaagggtgc ggaagaccgc      960
gcgccttcga tgatcgacga atatccgatt ctgctgtcgc ccgccgcctt cgcggaaggg     1020
gcgaccgtga tgaacggtct ggaagaactc cgcgtcaagg aaagcgaccg cctctcggcc     1080
gtcgccaatg gcctcaagct caatggcgtg gattgcgatg agggcgagac gtcgctcgtc     1140
gtgctgggcc gccctgacgg caaggggctc ggcaacgcct cgggcgccgc cgtcgccacc     1200
catctcgatc accgcatcgc catgagcttc ctgctcatgg gcctcgtgtc ggaaaaccct     1260
gtcacggtgg acgatccac gatgatcgcc acgagcttcc cggagtcat ggacctgatg     1320
gccgggctgg gcgcgaagat cgaactctcc gatacgaagg ctgcctga      1368

```

<210> 17

<211> 1368
 <212> DNA
 <213> *Agrobacterium tumefaciens*

<400> 17
 atgcttcatg gagcttcatac taggccagct actgccagga agtctagcgg gctcagtggc 60
 accgtgcgca tccctggcga taaaagtatt tcacacagga gcttcatggt cggaggactt 120
 gctagtggag agacgagaat cactggtttg cttgagggcg aagatgttat caacaccggt 180
 aaggcgatgc aagcaatggg tgccagaatc cgaaaagagg gcgatacgtg gatcatcgac 240
 ggtgttggtg acggaggatt gctcgcctcc gaagcgccac ttgactttgg gaacgcagct 300
 acgggggtgcc gtcttactat gggactggta ggcgtgtatg actttgactc taccttcatac 360
 ggtgacgcga gcctcactaa gagaccaatg ggacgagtgc tgaatcccct gagggagatg 420
 ggtgtccagg tgaaatctga ggatgggtgat cgtcttccgg ttactctgcg agggcccaag 480
 acccccacgc caatcacgta cagggttccg atggcgctcag cacagggtcaa gtcagcggta 540
 ctcttgccgg gcctcaacac acctggaatc acaaccgtga ttgaacccat catgactaga 600
 gaccacacgg agaagatgtt gcagggtttc ggcgctaatac taacggtcga aaccgacgcc 660
 gacggcgtga ggacaatccg cttggagggc agaggtaaag tgactggcca agtcatcgat 720
 gtgcctggag atccctcgtc cacagcggtt cccctcgtag ctgcgttgct cgtccctgga 780
 tctgatgtga cgatcctgaa tgtcctcatg aatccaacta gaaccggcct catcctcaca 840
 ttgcaggaga tgggtgctga catcgagggt atcaatccta ggttggcagg tggagaggat 900
 gtggccgatac tgcgcgctgc ttctagtaca ctcaaaggcg tgaccgtccc tgaggatcgc 960
 gctccatcca tgatcgacga gtacccatt ctgcgcgttg ctgctgcgtt tgccgagggc 1020
 gcaactgtaa tgaacggcct tgaggagttg aggggttaagg agagtgcag gctgtccgcg 1080
 gtggcgaatg gcctgaagct aaacggcggtg gactgcgacg aagggtgaaac gtcccttgta 1140
 gtccgtggtc gccagacgg gaaggggttg gggaatgctt cgggagctgc tgtggcgacg 1200
 caccttgatc atagaatcgc catgtcattt ctggtgatgg gacttgtctc cgagaatccg 1260
 gtgaccgttg acgatgctac catgatcgcc acctccttct ctgagttcat ggacctcatg 1320
 gcaggcttgg gggccaagat cgagctgtct gatactaagg ccgcttga 1368

<210> 18
 <211> 1368
 <212> DNA
 <213> *Agrobacterium tumefaciens*

<400> 18
 atgtacacg gtgcaagcag ccggccggca accgctcgca aatcttccgg cctttcgga 60
 acggtcagga ttccgggcga taagtccata tcccaccggt cgttcatggt cggcggtctt 120

```

gccagcgggtg agacgcgcat cacgggcctg cttgaagggtg aggacgtgat caataccggg 180
aaggccatgc aggtatggg agcgcgtatc cgcaaggaag gtgacacatg gatcattgac 240
ggcgttggga atggcgggtct gctcgccctt gaggccctc tcgacttcgg caatgcggcg 300
acgggctgca ggctcactat gggactggtc ggggtgtacg acttcgatag cacgttcac 360
ggagacgcct cgctcacaaa gcgcccaatg ggccgcgttc tgaaccggtt gcgcgagatg 420
ggcgtagagg tcaaatccga ggatgggtgac cgtttgcccg ttacgtgcg cgggcogaag 480
acgcctaccc cgattaccta ccgcgtgcca atggcatccg cccaggtaa gtcagccgtg 540
ctcctcgccg gactgaacac tccgggcac accacgggtga tcgagcccat catgaccagg 600
gatcataccg aaaagatgct tcaggggttt ggcgccaacc tgacgggtcg gacggacgct 660
gacggcgtca ggaccatccg ccttgagggc aggggtaaac tgactggcca agtcatcgat 720
gttcggggag acccgctgct cacggccttc ccgttggttg cggcgctgct cgtgccgggg 780
agtgacgtga ccatcctgaa cgtcctcatg aacccgacca ggaccggcct gatcctcacg 840
cttcaggaga tgggagccga catcgagggtg atcaaccgc gcctggcagg cggatgaagac 900
gttgcggtac tgcgcggtgc ctcctctacc ctgaagggcg tgacgggtccc ggaagatcg 960
gcgcggtcca tgatagacga gtatcctatt ctggcgtcg ccgctgcgtt cgccgaaggg 1020
gccacgggtca tgaacggtct tgaggaactc cgcgtgaagg aatcggtatg cctgtcggcg 1080
gtggccaatg gcctgaagct caacggtgtt gactgcgacg aggggtgagac ctcaactcgtg 1140
gtcgtgggcc ggcctgatgg caagggcctc ggcaacgcca gtggagcggc cgtcgccacg 1200
cacctcgatc atcgcatcg gatgtcctt ttggtgatgg gtctcgtctc agagaacccg 1260
gtgaccgtcg atgacgccac gatgatagcg acgagcttcc cagagtcat ggatctgatg 1320
gcgggcctcg gggccaagat cgaactgtct gacacgaagg ccgcttga 1368

```

<210> 19

<211> 183

<212> PRT

<213> Streptomyces hygroscopicus

<400> 19

```

Met Ser Pro Glu Arg Arg Pro Ala Asp Ile Arg Arg Ala Thr Glu Ala
1           5           10           15

```

```

Asp Met Pro Ala Val Cys Thr Ile Val Asn His Tyr Ile Glu Thr Ser
          20           25           30

```

```

Thr Val Asn Phe Arg Thr Glu Pro Gln Glu Pro Gln Asp Trp Thr Asp
          35           40           45

```

Asp Leu Val Arg Leu Arg Glu Arg Tyr Pro Trp Leu Val Ala Glu Val
50 55 60

Asp Gly Glu Val Ala Gly Ile Ala Tyr Ala Gly Pro Trp Lys Ala Arg
65 70 75 80

Asn Ala Tyr Asp Trp Thr Ala Glu Ser Thr Val Tyr Val Ser Pro Arg
85 90 95

His Gln Arg Thr Gly Leu Gly Ser Thr Leu Tyr Thr His Leu Leu Lys
100 105 110

Ser Leu Glu Ala Gln Gly Phe Lys Ser Val Val Ala Val Ile Gly Leu
115 120 125

Pro Asn Asp Pro Ser Val Arg Met His Glu Ala Leu Gly Tyr Ala Pro
130 135 140

Arg Gly Met Leu Arg Ala Ala Gly Phe Lys His Gly Asn Trp His Asp
145 150 155 160

Val Gly Phe Trp Gln Leu Asp Phe Ser Leu Pro Val Pro Pro Arg Pro
165 170 175

Val Leu Pro Val Thr Glu Ile
180

<210> 20

<211> 552

<212> DNA

<213> *Streptomyces hygroscopicus*

<400> 20

atgagcccag aacgacgccc ggccgacatc cgccgtgcc a c gaggcgga catgccggcg 60

gtctgcacca tcgtcaacca ctacatcgag acaagcacgg tcaacttcg taccgagccg 120

caggaaccgc aggactggac ggacgacctc gtccgtctgc gggagcgcta tccctggctc 180

gtcgccgagg tggacggcga ggtcgccggc atcgccctacg cgggcccctg gaaggcacgc 240

aacgcctacg actggacggc cgagtcgacc gtgtacgtct cccccgccca ccagcggacg 300

ggactgggct ccacgctcta caccacctg ctgaagtccc tggaggcaca gggcttcaag 360

agcgtggctg ctgtcatcgg gctgcccac gacccgagcg tgcgcatgca cgaggcgctc 420

ggatatgccc cccgcggcat gctgcgggcg gccggcttca agcacgggaa ctggcatgac 480

gtgggtttct ggcagctgga cttcagcctg ccggtaccgc cccgtccggt cctgcccgtc 540

accgagatct ga

552

<210> 21

<211> 552

<212> DNA

<213> *Streptomyces hygroscopicus*

<400> 21

atgagtccag aaaggagacc ggctgatatt cggagagcca ccgaagctga tatgcctgct 60
 gtttgtacaa tcgtaaacca ttatatcgag acctcgacag ttaattttcg cactgagccg 120
 caggagccac aggattggac ggacgatctg gtacgtttta gagaacgtta tccgtggcta 180
 gttgctgagg ttgacggaga agtcgctggt atagcttacg ctggaccgtg gaaagctcgt 240
 aacgcttacg actggacagc agaatccact gtctacgtca gccctcgtca tcaaagaacc 300
 ggattagggg gcacgttgta cactcatctt ttaaagtcac tggaggcaca aggcttcaag 360
 tctgttggtg cagttattgg attgccaaac gatccgagtg ttcgaatgca cgaagcgctt 420
 ggatacgctc cacgaggtat gctccgtgct gccggattca aacatggaaa ttggcacgac 480
 gtaggttttt ggcaactgga cttttcaact cccgttcccc ctagacctgt acttccagtt 540
 actgaaatct ag 552

<210> 22

<211> 552

<212> DNA

<213> *Streptomyces hygroscopicus*

<400> 22

atgtcgctg agcgccgtcc tgctgacata agacgcgcta ccgaggcaga catgcctgct 60
 gtttgcacca ttgtgaatca ctacatcgag acatctacgg taaacttccg cactgagcct 120
 caagaaccgc aggattggac cgacgatctc gtgcgtctca gagagcgta tccgtggctg 180
 gttgcagagg tggacggtga agtggctggg atcgccctacg ctggaccgtg gaaggctaga 240
 aacgcatacg attggactgc ggagtccaca gtctacgtct caccagaca tcaaagaacc 300
 gggctcggtc cgaccctcta tacgcatctc ctcaagtcct tagaggcgca gggcttcaaa 360
 tctgtagtgg cggatgatcg cttgccaaac gatcccagtg tgagaatgca cgaggcactc 420
 ggttacgctc ctagaggaat gctcagggcg gctggattca agcacggtaa ttggcacgac 480
 gttggcttct ggcaactgga cttctctttg ccagttccac ctcgctcctgt gctacccgtc 540
 accgaaatct ag 552

<210> 23

<211> 1368

<212> DNA

<213> *Agrobacterium tumefaciens*

<400> 23

```

atgcttcacg gtgcaagcag ccgccagca actgctcgta agtcctctgg tctttctgga      60
accgtccgta ttccagggtga caagtctatc tcccacaggt ccttcattgtt tggagggtctc    120
gctagcgggtg aaactcgtat caccgggtctt ttggaagggtg aagatgttat caacactgggt    180
aaggctatgc aagctatggg tgccagaatc cgtaaggaag gtgatacttg gatcattgat      240
gggtgttggtg acgggtggact ccttgctcct gaggtctctc tcgatttcgg taacgctgca     300
actggttgcc gtttgactat gggctctgtt ggtgtttacg atttcgatag cactttcatt      360
ggtgacgctt ctctcactaa gcgtccaatg ggtcgtgtgt tgaaccact tcgcgaaatg      420
gggtgtgcagg tgaagtctga agacgggtgat cgtcttcag ttaccttgcg tggaccaaag     480
actccaacgc caatcaccta cagggtacct atggcttccg ctcaagtga gtccgctgtt      540
ctgcttgctg gtctcaacac cccagggtatc accactgtta tcgagccaat catgactcgt      600
gaccacactg aaaagatgct tcaagggtttt ggtgctaacc ttaccgttga gactgatgct      660
gacgggtgtgc gtaccatccg tcttgaagggt cgtggttaagc tcaccgggtca agtgattgat     720
gttccagggtg atccatcctc tactgttttc ccattgggtg ctgccttgct tgttccagggt     780
tccgacgtca ccaccttaa cgttttgatg aaccaaccc gtactggtct catcttgact      840
ctgcaggaaa tgggtgccga catcgaagtg atcaaccac gtcttgctgg tggagaagac      900
gtggctgact tgcgtgttcg ttcttctact ttgaagggtg ttactgttcc agaagaccgt      960
gtccttcta tgatcgacga gtatccaatt ctgctgttg cagctgcatt cgctgaagggt    1020
gtaccgtta tgaacggttt ggaagaactc cgtgttaagg aaagcgaccg tctttctgct    1080
gtcgcaaacg gtctcaagct caacgggtgtt gattgcgatg aaggtagagac ttctctcgtc    1140
gtgcgtggtc gtcctgacgg taagggtctc ggtaacgctt ctggagcagc tgtcgtacc     1200
cacctcgatc accgtatcgc tatgagcttc ctggttatgg gtctcgtttc tgaaccct      1260
gttactgttg atgatgctac tatgatcgtc actagcttcc cagagttcat ggatttgatg     1320
gctggtcttg gagctaagat cgaactctcc gacactaagg ctgcttga      1368

```

<210> 24

<211> 16

<212> DNA

<213> Artificial sequence

<220>

<223> DNA primer molecule

<400> 24

catggagctt catcta

16

<210> 25
<211> 16
<212> DNA
<213> Artificial sequence

<220>
<223> DNA primer molecule

<400> 25
gcctttgagt gtacta 16

<210> 26
<211> 16
<212> DNA
<213> Artificial sequence

<220>
<223> DNA primer molecule

<400> 26
gggagcgcggt atccgc 16

<210> 27
<211> 16
<212> DNA
<213> Artificial sequence

<220>
<223> DNA primer molecule

<400> 27
ggatgggtcac gtcact 16

<210> 28
<211> 16
<212> DNA
<213> Artificial sequence

<220>
<223> DNA primer molecule

<400> 28
cggcatcacg acggtc 16

<210> 29
<211> 16
<212> DNA
<213> Artificial sequence

<220>
<223> DNA primer molecule

<400> 29
ggcatcggtcc accgtg 16

<210> 30
 <211> 16
 <212> DNA
 <213> Artificial sequence

<220>
 <223> DNA primer molecule

<400> 30
 gcaactgggtt gccggtt 16

<210> 31
 <211> 16
 <212> DNA
 <213> Artificial sequence

<220>
 <223> DNA primer molecule

<400> 31
 atcacctgga acatca 16

<210> 32
 <211> 22
 <212> DNA
 <213> Zea mays

<400> 32
 cgtcaagatc ctcttcacct cg 22

<210> 33
 <211> 22
 <212> DNA
 <213> Zea mays

<400> 33
 acaccctctc caacactctc ta 22

<210> 34
 <211> 9
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Motif providing glyphosate resistance to a plant EPSPS

<400> 34

Gly Asn Ala Gly Ile Ala Met Lys Ser
 1 5

<210> 35
 <211> 1596
 <212> DNA
 <213> Agrobacterium tumefaciens

<400> 35
 atggcccaag ttagccgaat ctgcaacggt gtgcagaatc catcactaat ctccaacctg 60
 tccaaatcgt cacaacgtaa gtcgccatta tctgttagct tgaagactca gcaacatcct 120
 cgcgcatatc ctatatcaag cagttggggt ttgaagaaat cgggtatgac cttgattggt 180
 tcggaactta ggccattgaa ggtgatgtct tcagttagta cagcttgcat gcttcacggt 240
 gcttcttcca gaccgcgaac ggctagaaag agttctggct tgtctggaac cgtccgtatt 300
 ccaggagaca aaagcattag tcaccgctct ttcattgttg gtgggctggc atctggagag 360
 acgcgcatca ctggtcttct ggaaggagag gacgtcatca atacagggaa ggcaatgcag 420
 gctatgggtg ccctgattcg caaggaaggt gatacttgga tcatagacgg agttgggaac 480
 ggtggcttac ttgcaccgga ggctcctctc gactttggca acgcagccac aggggtgtaga 540
 cttactatgg gcctcgtggg tgtttacgat ttcgattcaa cctttattgg ggatgcctct 600
 ctactaaac gcccaatggg aagagtcctt aaccctgtga gggagatggg cgtacaagtt 660
 aagtccgagg acggcgacag attgccgctc accttgccgc gccctaagac acccaccct 720
 attacttaca gggttccaat ggcatctgct caagtgaagt ccgcagttct gctcgtgga 780
 ttgaacacac cgggtattac taccgtgatt gagccgatca tgactcgtga ccacactgag 840
 aagatgcttc agggtttcgg tgctaacctc accgttgaac cagacgcgga cgggtgtgagg 900
 accattcgcc tggagggaaag gggaaaactc actggtcaag tcattgacgt gcccggtgat 960
 ccctccagca cggcgttccc actggttgcc gctcttctcg taccaggctc cgatgtgaca 1020
 attctaaacg tcctcatgaa toctactaga accggattga tacttacatt gcaggaaatg 1080
 ggtgctgata ttgaagttat caatcctaga ctagccggag gtgaggacgt agctgatttg 1140
 cgggtgaggt cttctacatt gaaaggtgtt accgtacctg aagatagggc accttcaatg 1200
 attgacgagt atccaattct tgccgtccgc gctgcctttg ctgagggcgc gaccgtgatg 1260
 aatggactag aggagttgag agtgaaggaa tccgacagat tgagcgagc cgctaacgga 1320
 cttaaactca atggcgttga ttgtgatgag ggtgagacta gcttggtagt ccgtgggcga 1380
 ccagacggaa agggtttggg caacgcttcg ggtgctgccg ttgcaactca cttggatcat 1440
 cggatagcga tgagttttct ggtgatgggt ctcgtaagcg agaatcctgt gacagtcgac 1500
 gatgcaacta tgatcgctac ttccttccct gagtttatgg atttaatggc aggactaggt 1560
 gcaaagattg aactctctga taccaaagcg gcctaa 1596